

New data on the Afrotropical brown lacewings (Neuroptera: Hemerobiidae)

by

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New distribution records and comments on the biology and morphology of 19 species of Afrotropical hemerobiids are given. The male genitalia of the genus *Anapsectra* Tjeder, 1975 are described for the first time, and the validity of the genus *Dyshemerobius* Tjeder, 1961 is discussed. *Micromus acutipennis* Kimmins, 1956 is recorded for the second time, and *Anapsectra berothoide*, *Dyshemerobius anomalus*, and *Micromus berzosai* are described as new species.

KEY WORDS: Neuroptera, Hemerobiidae, *Anapsectra*, *Dyshemerobius*, *Micromus*, Afrotropical, faunistic, taxonomy.

INTRODUCTION

In comparison with the Palaearctic, Nearctic, and Australian brown lacewing faunas, our knowledge of the Afrotropical fauna is scanty and incomplete. Although several excellent papers providing descriptions of Afrotropical brown lacewings exist, the large size of tropical Africa and the rarity of new collections has resulted in extremely spotty distribution data for many African species, and almost no information on the biology and larval stages of species inhabiting this region. Many species are known only from their original descriptions, and many of these lack satisfactory characterizations of genital morphology, and variability.

This paper gives new data on the morphology, biology and distribution of 19 Afrotropical hemerobiids species, three of which are described as new species. These specimens belong to the Musée Royal de l'Afrique Centrale of Tervuren (MRAC) or to the author's collection (VJM).

Notiobiella nitidula Navás, 1910.

Known from Kenya, Angola and Madagascar, but not previously recorded from South Africa, where it seems to be very common species on trees and at light.

The freshly collected specimens of *N. nitidula* reported here are green all over including antennae, thorax, legs, wing venation and abdomen, not yellowish or pale brown as described Monserrat (1984) from old pinned material and more recent specimens preserved in alcohol.

MATERIAL EXAMINED: SOUTH AFRICA: Transvaal: Kruger National Park, Berg en Dal, 2.ii.1988, 1 ♂ V. J. Monserrat (VJM). Shingwedzi, 6.ii.1988, 18 ♂♂, 19 ♀♀ V. J. Monserrat (VJM). Soutpansberg, 8.ii.1988, 1 ♂ V. J. Monserrat (VJM).

Notiobiella turneri Kimmins, 1933.

Known only from South Africa.

MATERIAL EXAMINED: SOUTH AFRICA: Transvaal: Naboomspruit, Nylsvley Reserve, 14.ii.1988, 1 ♂, 3 ♀♀ V. J. Monserrat (VJM) on trees.

Notiobiella ugandensis Kimmins, 1939.

Recorded from Uganda, Zimbabwe, and Cameroon. One female collected in **ZAIRE:** Rutshuru, Parc National Albert, 1.1934 G. F. de Witte (MRAC), agrees with Kimmins (1939) description.

Notiobiella punctata Tjeder, 1961.

A species previously known from South Africa. One specimen without abdomen, collected in **ZAIRE:** Rutshuru, 7.i.1937 J. Ghesquière (MRAC) can be assigned to this species on the basis of the morphological data given by Tjeder (1961).

Notiobiella semeriai Monserrat, 1984.

Recorded from Cameroon and Zaire.

MATERIAL EXAMINED: IVORY COAST: Zepreghé, Daloa, xii.1962, 1 ♂ J. Decelle, 1.1963, 2 ♀♀ J. Decelle. **ZAIRE:** Ituri, Epulu, 18.v.1936, 1 ♀ L. Lippens. Parc National Albert, Rwindi, 1.000 m, 20–24.xi.1934, 1 ♂ G. F. de Witte. Yangambi, Stan., xi.1959, 3 ♀♀ J. Decelle. All of the MRAC.

Notiobiella mariliae Monserrat, 1984.

Known from Cameroon and Equatorial Guinea.

MATERIAL EXAMINED: ZAIRE: Kivu, Rutshuru, 1.285 m 25.xi–20.xii.1933, 1 ♀ G. F. de Witte (MRAC).

Psectra jeanneli (Navás, 1914).

Recorded from Kenya, Zaire, and Equatorial Guinea.

MATERIAL EXAMINED: ZAIRE: Elisabethville, 3.iv.1949, 1 ♂ Ch. Seydel (MRAC), 30.iv.1949, 1 ♂ Ch. Seydel (VJM) at light.

Anapsectra berothoide n.sp.

MATERIAL EXAMINED: HOLOTYPE: ZAIRE: Elisabethville, 15.iii.1949, 1 ♀. **PARATYPES: ZAIRE:** Elisabethville, 18.iii.1949, 1 ♀, 20.iii.1949, 1 ♂, 3.iv.1949, 1 ♂,

28.iv.1949, 1 ♀, all collected by Ch. Seydel at light, pinned in (MRAC), one paratype (♀) in (VJM).

Description. Head caramel brown with pale setae. Eyes black, smaller in female. Antennae with pale brown scape and pedicel, darker brown flagellum. Mandibles brown. Maxillae as in Fig. 7. Palp brown, palmicula of ultimate labial palpomere consisting of three robust setae (Fig. 6).

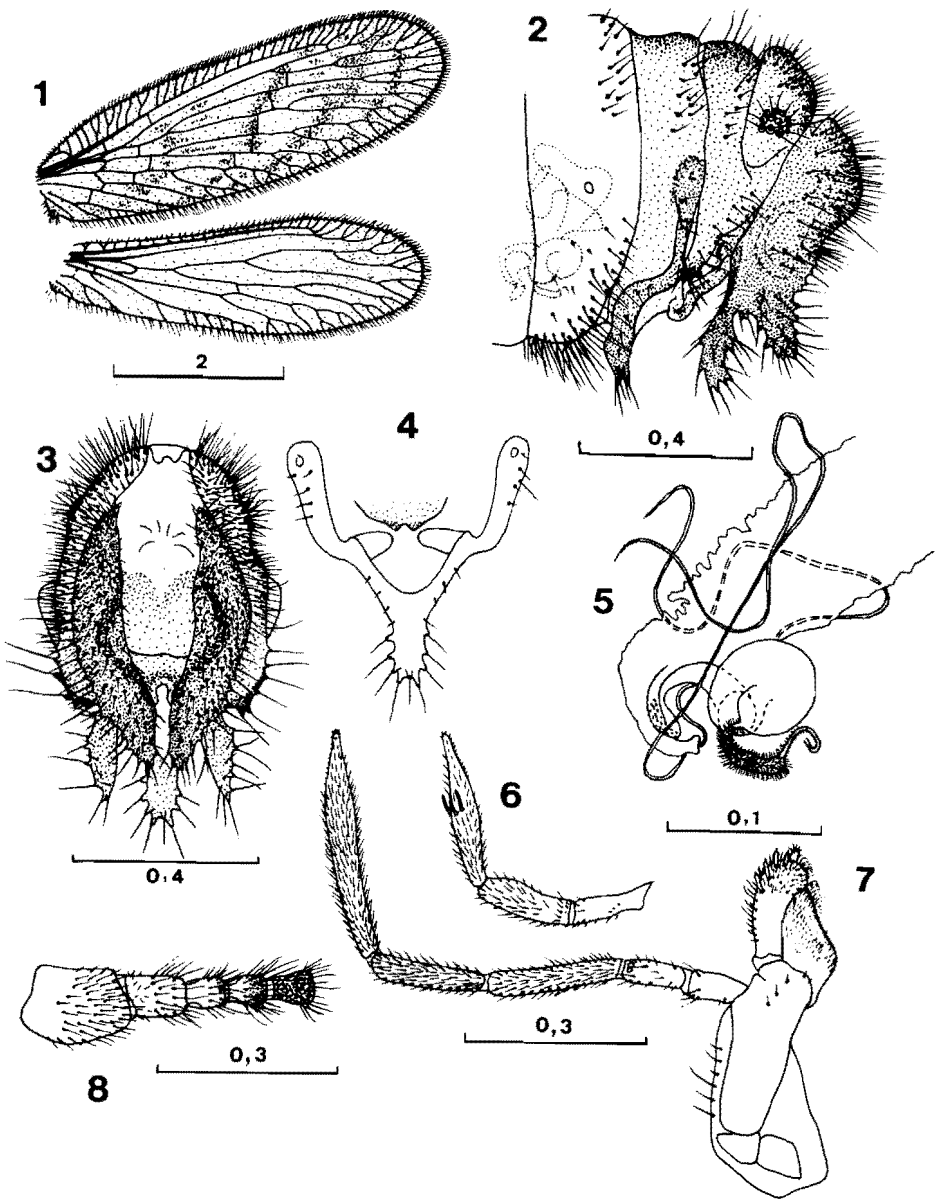
Thorax brown, paler on midline. Legs yellowish brown. Wings very iridescent with pale brown venation as in Figs 1 and 9. Forewings with translucent brown membrane and darker irregular marks. Hindwings paler with only a few darker marks at apex. Pterostigma indistinct in both wings (Figs 1, 9).

Male. Abdomen brown, tergites and sternites transverse, tergites lack special structures. Tergite IX fused with antecosta, which has an anterior apodeme below the 8th segment (Fig. 11). Posterolateral processes of IX tergite are articulated and fork into two caudal branches, the ventral branch is cone-shaped, robust, and heavily toothed externally, with a seta associated with the base of each denticle, the dorsal branch is longer and narrower, somewhat sinuous towards the midline, and carries small denticles associated with elongate setae (Figs 10, 11). Ectoproct quite hairy on both sides of midline. Cercal callus with 9–14 trichobotria. Catoprocessus conical, with a small subapical denticle (Fig. 11), and two single setae proximally. Sternite IX small and hemispherical. Gonarcus with two curved flat lateral processes which are striped parallel to margins. Caudally the gonarcus bears two curved, conical and parasagittal teeth with sensor buttons on their apices. The sagittal zone has a cone-shaped, and robust tooth, more ventral than the others (Fig. 12). Parameres fuse anteriorly, into flat, rounded plate. The posterior region has two divergent, conical processes ventrally associated with membranous structures (Figs 13, 14). Hypandrium triangular, anterior margin serrate (Fig. 15).

Female. Sternites I–IV bear transverse apodemes, VII sternite very hairy posteriorly. Tergite VIII narrow. Sternite VIII V-shaped with lateral branches strongly sclerotized and sinuous in lateral view (Fig. 2), and bearing two robust internal apodemes (Fig. 4). Ventrally these branches are fused into a somewhat recurved conical process, bearing numerous denticles, each with one associated setae (Figs 3, 4). Tergite IX not fused with ectoproct, ending ventrally in two heavily sclerotized processes also bearing robust denticles and associated setae (Figs 2, 3). Sternite IX weakly sclerotized, sinuous in lateral view (Fig. 2), V-shaped in ventral view (Figs 3, 4). Ectoproct rhomboidal, with 12–13 trichobotria. Lateral gonapophyses nearly rectangular in lateral view (Fig. 2), with two caudal processes carrying denticles and associated seta. The posterior process is conical, the anterior thinner, and basally constricted (Figs 2, 3). Internally, the lateral gonapophyses are associated with a formation, probably the subgenital plate, that is rounded in caudal view, and hemispherical laterally (Figs 2, 3), and lies under the genital pore. Spermatheca very haired distally and with a membranous formation ending in the genital pore. The accessory glands are two long and sinuous tubes (Fig. 5).

Discussion:

Genus *Anapsectra* was described by Tjeder (1975) based on a single female specimen. Only *A. medleri*, from Nigeria is known in this genus. The external morphology and wing venation of *A. berothoide* **n.sp.** support its placement in this genus; however, it



differs from *A. medleri* in its variegated wings, the shape of the lateral gonapophyses, the ventral denticles of tergite IX, and the peculiarities of sternite VIII.

On the basis of its external and wing morphology, *Anapsectra* is evidently related to *Psectra* Hagen, 1866. Tjeder (1975) presented as the main differences between these genera the extremely long maxillary palpi, the absence of a suture between the vertex and frons, the forking of M in the forewings on level with the forkings of Rs₁ and CU₁, and the different pattern of the terminal structures in the female abdomen.

The description here of a second species of *Anapsectra*, with males, required the following revisions in Tjeder's generic concept: Should be eliminated the lack of a suture between the vertex and the frons, which is patent in *A. berothoide*. The alignment of M, CU₁ and Rs₁ forks seems to be somewhat variable (Figs 1, 9), although the M fork in *Anapsectra* is never as close to the wing base as it is in *Psectra*. New diagnostic characters for *Anapsectra* are the apparent lack of the transverse veinlets that associate the M fork with Rs₁ and CU₁, together with the presence of a maximum of three veinlets in the subcostal field of forewing.

The female terminalia of *A. berothoide*, are consistent with Tjeder's characterization of the structures of *Anapsectra*. To Tjeder's characters may be added the presence of forked lateral gonapophyses and the specialization in the last abdominal segments of the sternal region, which is more usual in some *Berothidae* genera than in *Hemerobiidae*. It is the reason of the specific name of the new species.

Diagnostic characters of the male terminalia of *Anapsectra* include the deep forking and denticulation of the lateroproductus, the presence of a cone-shaped catoprocessus without a brush of apical setae, the arched gonarcus with flat lateral processes and a caudal apex carrying thick teeth, and the lack of posterior fusion of the parameres.

Dyshemerobius productus Tjeder, 1961.

Known from Zimbabwe and Equatorial Guinea.

MATERIAL EXAMINED: **ZAIRE**: Parc National G., 24.vii.1952, 1 ♂ H. de Saeger (MRAC).

Dyshemerobius anomalus n.sp.

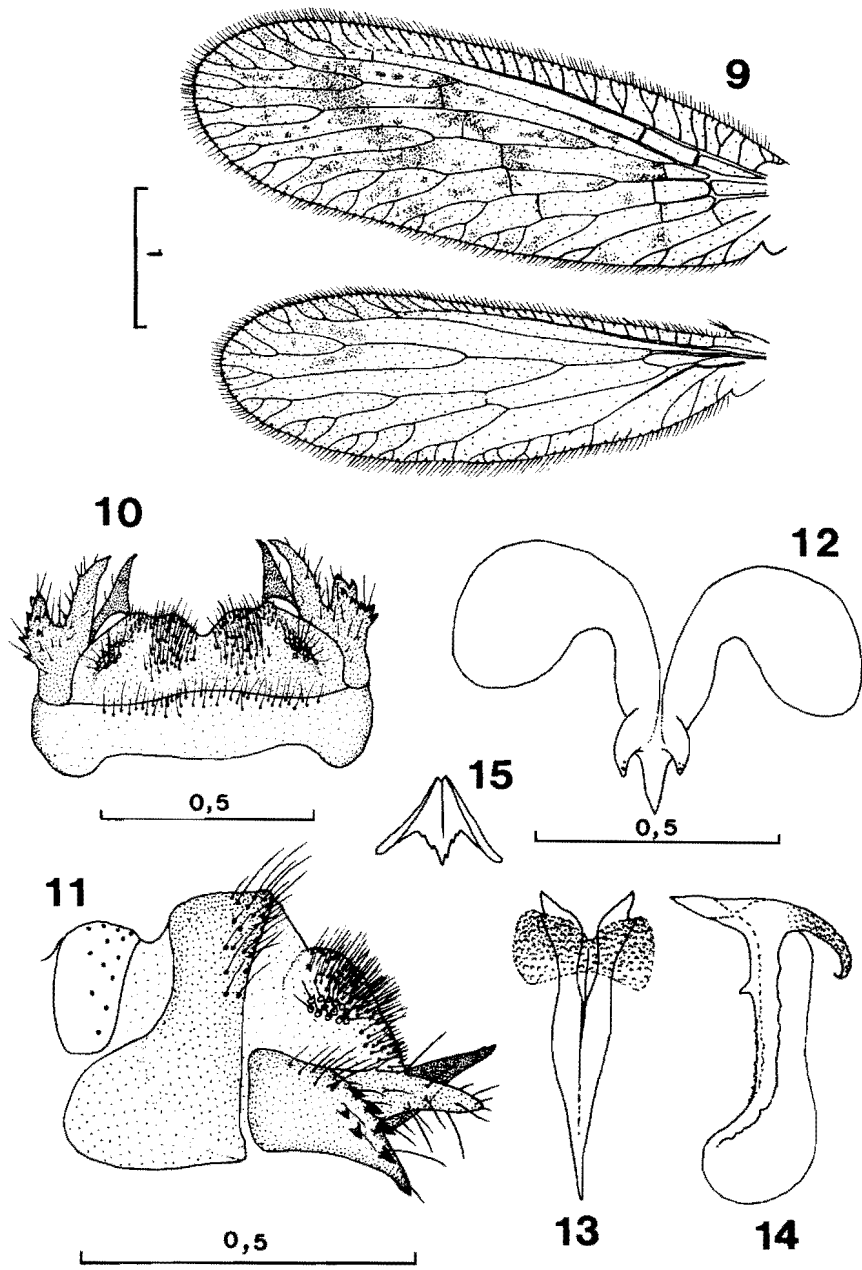
MATERIAL EXAMINED: **HOLOTYPE**: **ZAIRE**: Parc National Albert, Massif Ruwenzori, Kalonge, 2.060 m, Riv. Katauleko aff. Butahu, 30.i-3.ii.1953, 1 ♀ P. Vanshuymbroek & J. Kekenbosch, pinned in (MRAC).

Description:

MALE: unknown.

FEMALE: Head brown with pale setae, genae darker, toruli dark brown with a light zone on vertex. Antennae brown, scape and pedicel darker, the first is twice as

Figs 1-8. *Anapsectra berothoide* n.sp. HOLOTYPE ♀. 1. Wings. 2. Apex of abdomen (lateral view). 3. Same (caudal). 4. VIII sternite and part of IX sternite (ventro-caudal). 5. Spermatheca (lateral). 6. Labial palp (ventral). 7. Right maxilla (ventral). 8. Base of antenna (lateral). Scale bars in mm.



long as wide, in dorsal view its external margin is straight and its internal margin very convex. Palpi dark brown.

Pronotum brown, paler on midline, lateral tubercles yellowish. Meso and metanotum brown. Pleurae brown. Legs paler with hyaline setae. Tarsi dark brown. Wings elliptical, apex slightly acute (Fig. 16). Forewings with a somewhat sinuous costal vein, irregularly dark and pale striped. Sc pale brown, R pale brown, darker in contacts with Rs. Longitudinal veins pale-dark striped. Veinlet Sc-R, gradates, first crossvein between M and CU_1 and anterior half of crossvein between CU_1 and CU_2 dark brown, extending onto the adjacent membrane. Membrane pale brown, almost hyaline, with darker sagittate stripes more frequent on the external half of the wing. Anal field slightly dark. Jugum dark brown. Pterostigma hyaline, reddish brown at base. Hindwings with membrane and venation very pale brown, but transversal crossveins, end of Rs_1 and Costal vein in contact with A_1 and A_3 are darker brown. Pterostigma reddish brown on basal half.

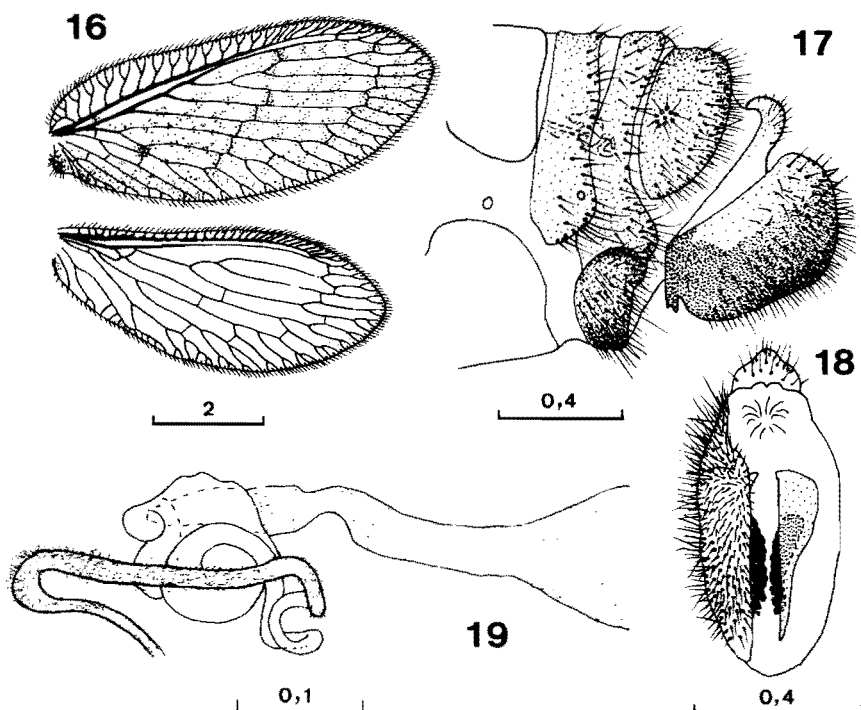
Tergite VIII rectangular in lateral view, a slightly angled ventrally (Fig. 17). Tergite IX narrow, fused with sternite IX, which is very conspicuous, strongly sclerotized and narrowed on the ventral midline. Ectoproct ovate. Cercal callus with 11–12 trichobotria. Lateral gonapophyses large, not fused caudally (Fig. 18), darker ventrally (Fig. 17). Hypocaudae small (incomplete?), ending irregularly in two teeth (Fig. 17). Enclosed within the lateral gonapophyses are two pairs of sclerites in both sides of the midline, the anterior pair is curved, irregular in outline, heavily sclerotized and dark brown, the caudal pair is subtriangular and more lightly sclerotized (Fig. 18). Above the gonopore, between the lateral gonapophyses and ectoprocts is another small tegumentary structure which is curved in lateral view (Figs 17, 18). Spermatheca unsclerotized with an haired and membranous tube which end in the gonopore (Fig. 19).

Discussion:

This species is apparently related to the genus *Dyshemerobius* Tjeder, 1961 based on the presence of hypocaudae on the female lateral gonapophyses. Two prior species have been described in this genus: *D. productus* Tjeder, 1961, from Zimbabwe, Equatorial Guinea, and Zaire, and *D. falciger* Tjeder, 1963 from Zimbabwe. Tjeder's (1961) description of this genus was particularly based on female genitalia. Its diagnostic features changed somewhat following the description of the second cited species by Tjeder (1963) and the description of the male genitalia of the first species by Monserrat (1990a). After the study of this new species, the fusion of the female lateral gonapophyses can hardly be maintained as valid generic character and the status of *Dyshemerobius* must again be questioned. Really, the only difference with genus *Hemerobius* is the presence of hypocaudae in the female.

D. anomalus n.sp. differs from the other two species in some aspects of wings and tegumentary coloration as well as wing venation. However the decisive differences are in the female genitalia, particularly the development of the 9th tergite and sternite, the lack of fusion between the lateral gonapophyses, the shortness of hypocaudae, and

Figs 9–15. *Anapsectra berothoide* n.sp. PARATYPE ♂. 9. Wings. 10. Apex of abdomen (dorsal view). 11. VIII, IX tergites and ectoproct (lateral). 12. Gonarcus (dorsal). 13. Parameres (ventral). 14. Same (lateral). 15. Hypandrium (ventral). Scale bars in mm.



Figs 16–19. *Dysmerobius anomalus* n.sp. HOLOTYPE ♀. 16. Wings. 17. Apex of abdomen (lateral view). 18. Same (caudal). 19. Spermatheca (lateral). Scale bars in mm.

the presence of paired sclerotized plates between the lateral gonapophyses. These peculiar characters justify its specific name.

Hemerobius nairobiensis Navás, 1910.

Recorded from Uganda, Kenya, Zimbabwe, and South Africa.

MATERIAL EXAMINED: **SOUTH AFRICA:** Transvaal: Soutpansberg, 8.ii.1988, 1 ♂ V. J. Monserrat at light (VJM). **TANZANIA:** Bunduki: Uluguru Mts, Moy Mgeta, 1,300 m, 30.iv–11.v.1957, 1 ♀ P. Basilewsky et N. Leleup (MRAC). **ZAIRE:** P.N.A., Escarpem de Kabasha, 1,500 m, 14.xii.1984, 1 ♀ G. F. de Witte (MRAC). P.N.U., Lusinga, 1,760 m, 11–18.vii.1947, 1 ♀ G. F. de Witte (MRAC), 12–17.xii.1947, 2 ♂♂ G. F. de Witte (MRAC).

Hemerobius reconditus Navás, 1914.

A widely distributed Afrotropical species.

MATERIAL EXAMINED: TANZANIA: Mt. Hanang, Versant Sud, 2,400 m, 22-30.v.1957, 1 ♀ P. Basilewsky et N. Leleup. Mt. Meru, Olkokola, Versant N.O., 2,750 m, 25-30.vi.1957, 1 ♀ P. Basilewsky et N. Leleup. Mts. Uluguru, Chenzema, 1,700 m, 2-22.vii.1971, 1 ♀ L. Berger, N. Leleup & J. Debecker. **ZAIRE:** N. Kivu, Ngesho, ix.1937, 3 ♀♀ J. Ghesquière. All in MRAC.

Micromus timidus Hagen, 1853.

A widely distributed species in the tropical zones of the Afrotropical, Oriental and Australian.

MATERIAL EXAMINED: IVORY COAST: Bingerville, iv.1961, 1 ♀ J. Decelle, ix.1961, 1 ♀ J. Decelle, xii.1961, 1 ♂ J. Decelle, viii.1962, 2 ♀♀ J. Decelle, 1-15.ix.1963, 1 ♀ J. Decelle. **ZAIRE:** Eala, xi.1936, 1 ♀ J. Ghesquière. Elisabethville, 1952, 1 ♂, 1 ♀ Ch. Seydel. I.R.S.A.C., Lac Kiwu, Goma, 12.x.1957, 1 ♀ G. Marlier. Kasenyi, 1.viii.1935, 1 ♀ H. J. Brédo. P.N.G., ii/fd/17, 9.vi.1951, 1 ♂, 1 ♀ H. de Saeger, ii/dd/8, 6.ix.1951, 1 ♂ H. de Saeger, P.N.U., Riv. Lukawe, 700 m, 25.xi-20.xii.1933, 1 ♂ G. F. de Witte, 28.x.1947, 1 ♂ G. F. de Witte. Rutshuru, 1,285 m, i.1937, 2 ♀♀ J. Ghesquière, 7.i.1937, 39 ♂♂, 30 ♀♀ J. Ghesquière, ii.1937, 3 ♀♀ J. Ghesquière, iii.1937, 1 ♂, 2 ♀♀ J. Ghesquière, v.1937, 2 ♂♂ J. Ghesquière, Tshuapa, Bamanía, 29.viii.1959, 1 ♂ R. P. Hulstaert, 31.x.1959, 1 ♀ R. P. Hulstaert, vii.1962, 1 ♂, R. P. Hulstaert, 1968, 2 ♀♀ R. P. Hulstaert. Bokatola, iv.1964, 1 ♀ R. P. Hulstaert, Lukolela, 1 ♀ De Guide. Some specimens collected on *Coffea arabica*, others at light, and all of MRAC.

Micromus sjostedti Weele, 1910.

Known from Tanzania, Uganda, and South Africa.

MATERIAL EXAMINED: SOUTH AFRICA: Transvaal, Kruger National Park, Berg en Dal, 4.ii.1988, 1 ♀ V. J. Monserrat (VJM). Naboomspruit, Nylsvley Reserve, 14.ii.1988, 1 ♀ V. J. Monserrat (VJM). **ZAIRE:** Elisabethville, 3.iii.1949, 1 ♀ Ch. Seydel (MRAC), 15.iii.1949, 1 ♀ Ch. Seydel (MRAC). Irumu, vi.1937, 1 ♂ H. J. Brédo (MRAC). Lusinga, P.N.U., 3.vii.1947, 1 ♂, 2 ♀♀ G. F. de Witte (MRAC), 11-18.vii.1947, 2 ♂♂ G. F. de Witte (MRAC). P.N.U., Kilweziaffl. dr. Lufira, 750 m, 9-14.viii.1948, 1 ♂ G. F. de Witte (VJM). Rutshuru, Parc National Albert, i.1937, 3 ♂♂ J. Ghesquière (MRAC), 7.i.1937, 7 ♂♂, 5 ♀♀ J. Ghesquière (MRAC), 1 ♂, 1 ♀ J. Ghesquière (VJM), 4-5.i.1934, 1 ♂ G. F. de Witte (MRAC), 5.i.1937, 1 ♂ J. Ghesquière (MRAC), iii.1937, 1 ♀ J. Ghesquière (MRAC). Some specimens collected on trees, others at light.

Micromus plagatus Navás, 1934.

Known from Madagascar and Mauritius.

MATERIAL EXAMINED: MADAGASCAR: Antsirabe, iii.1944, 1 ♂ A. Seyrig (MRAC).

Micromus oblongus Kimmins, 1935.

Recorded from Kenya, Tanzania and South Africa. Some female specimens here studied can be assigned to this species on the basis of data given by Kimmins (1935) and Tjeder (1961).

MATERIAL EXAMINED: ZAIRE: Elisabethville. 15.iii.1949, 1 ♀ (MRAC), 18.iii.1949, 1 ♀ (MRAC), 3.iv.1949, 1 ♀ (MRAC), 30.iv.1949, 1 ♀ (MRAC), iii.1950, 1 ♀ (VJM), all collected by Ch. Seydel at light.

Micromus acutipennis Kimmins, 1956.

Known from Zaire and not subsequently recorded. New data on wing morphology is given in Fig. 28.

MATERIAL EXAMINED: ZAIRE: Parc National Albert, Secteur Tshiaberimu, Riv. Musabaki, 2.720 m, 15.iii.1954, 1 ♀ P. Vanschuytbroeck & H. Synave (MRAC), 23.iii.1954, 1 ♀ P. Vanschuytbroeck & H. Synave (VJM).

Micromus berzosai n. sp.

MATERIAL EXAMINED: HOLOTYPE: TANZANIA: Terr. Mt. Oldeani, Versant Est, for. mont., 2.300 m, 13.vi.1957, 1 ♂ Mission Zoolog. I.R.S.A.C. en Afrique Orientale, P. Basilewsky et N. Leleup. **PARATYPE: TANZANIA:** Terr. Mt. Meru, Olkokola, Versant N.O., 2.750 m, 25/26 & 30.vi.1957, 1 ♀ Mission Zoolog. I.R.S.A.C. en Afrique Orientale P. Basilewsky et N. Leleup, in the collection of the MRAC.

Description:

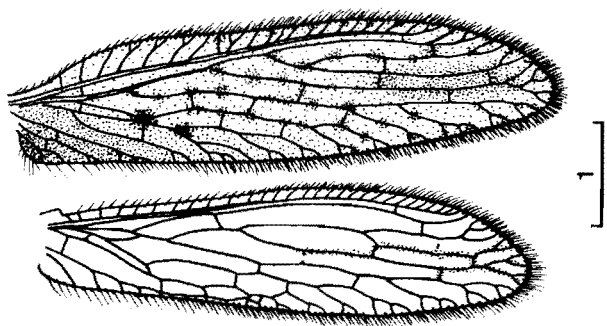
Head and palpi yellowish, eyes hemispherical, black and small. Escape yellowish with brown external distal margin, pedicellum and basal half of flagellum yellowish, distal half brownish.

Thorax brown with a middorsal yellowish stripe. Legs yellowish. Wings narrow, venation and pigmentation as in Figs 20, 27. Forewings with membrane yellowish and with a dark brown spot on the M fork and a brown longitudinal mark on the disk. The venation is pale except for the unequally and irregularly placed brown stripes on the longitudinal veins, at the beginning of the Rs, and on costal field, where the adjacent membrane is darker. The anal region also has a somewhat darker membrane. Radius with 2 to 3 sectors. The hindwings have the membrane hyaline with slightly darker marks lying longitudinally on the middle of the wing and its posterior margin. Pterostigma brownish.

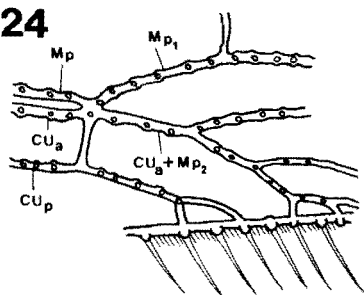
Male abdomen yellowish. Ectoproct with a prominent antecosta which extends anteroventrally as a long digitiform apodeme (Fig. 21). Cercal callus with 8–9 trichobotria. Below it there is a circular formation with a more irregular integument (Fig. 21). Catoprocessus robust, bent slightly upwards and curved towards the midline, ventral surface denticulate (Fig. 21). In ventral view sternite IX is trapezoidal. Gonarcus arched with a deep u-shaped notch on its anterior margins. The middorsal region is well sclerotized and carries strong denticles that become longer posteriorly (Fig. 22). This

Figs 20–25. 20–24: *Micromus berzosai* n.sp. HOLOTYPE ♂. 20. Wings. 21. Ectoproct (lateral view), setae omitted and catoprocessus magnified. 22. Arcessus (dorso-caudal), dorsal denticles and apex magnified. 23. Hypandrium (ventral). 24. Distal end of mediocubital area of forewing. 25: *Micromus oblongus* Kimmins, 1935. Distal end of mediocubital area of forewing. Scale bars in mm. CUa: Anterior cubitus, CUp: posterior cubitus, Mp: posterior media.

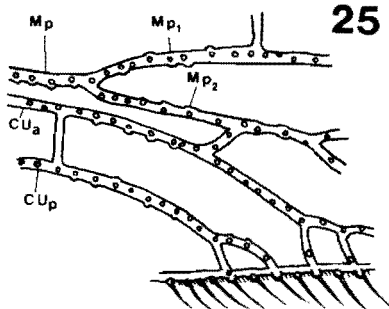
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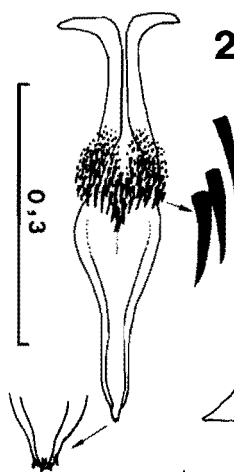
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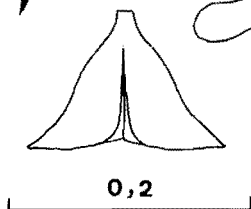
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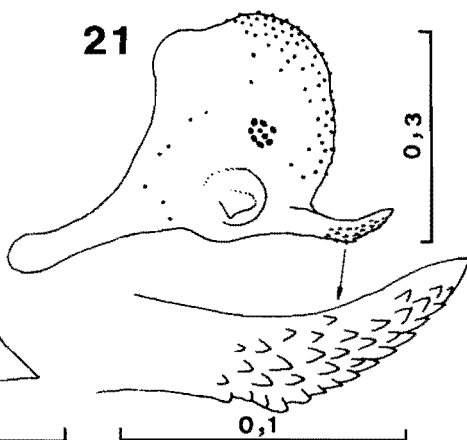
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portion bends in a narrow arcessus which is somewhat sinuous, apex curved bearing small spines (Fig. 22). Parameres fused anteriorly, spatulate in lateral view, with a flat square process on the caudal portion on either side of the midline and a more external denticule that curves outwards and upwards, ventrally the parameres are prolonged with membranous formations. Hypandrium triangular, with sinuous lateral margins and blunt caudal apex (Fig. 23).

Female abdomen with sternite VIII dorsally wide, and rounded at its ventral apex. The IX tergite has straight ventral parallel margins. The subgenital plate is absent. The circular ectoproct has a cercal callus with 8 trichobotria. Lateral gonapophyses very small and semicircular. Spermatheca not sclerotized.

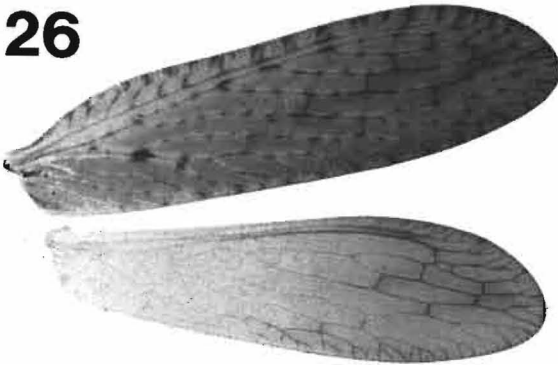
Discussion:

The genus *Micromus* Rambur, 1842 is represented in the Afrotropical region by 18 species, of which *M. lanceolatus* Navás, 1910, *M. insulanus* Navás, 1925, *M. laxus* Navás, 1930 and *M. zonarius* Navás, 1936 have recently been synonymized with *M. africanus* Weele, 1910. *M. timidus* Hagen, 1853, *M. sjostedti* Weele, 1910 and *M. plagatus* Navás, 1934 respectively by Monserrat (1990b). Another five species, *M. insularis* Hagen, 1886, *M. plagatus* Navás, 1934, *M. fuscotriatus* (Fraser, 1951), *M. malgassicus* (Fraser, 1951), and *M. multinervosus* (Fraser, 1955) have been described from Madagascar, but the validity of most of these species requires confirmation. One species was described from St. Helena: *M. atlanticus* Tjeder, 1976, and the last eight species are known from the continental zone. Among these last species *M. parallelus* (Navás, 1936), *M. oblongus* Kimmins, 1935 and *M. acutipennis* Kimmins, 1956 form a group characterized by narrow wings and the frequent fusion of Mp and CUa of the hindwings, Tjeder (1961). *Micromus berzosai* **n.sp.** also belongs to this group. Variation in external, wings, and in particular, male genitalia, of these three species is not well known. *Micromus parallelus* is known only from a single male specimen recently redescribed by Monserrat (1990b). *Micromus acutipennis* was previously known only from one male and two females; on the basis its original description and of the females studied here, it exhibits considerable variation in wing morphology (Kimmins, 1956 and Fig. 28). *Micromus oblongus* is the best known in this group, I have seen much material of this species, and it seems to exhibit only very slight morphological variability.

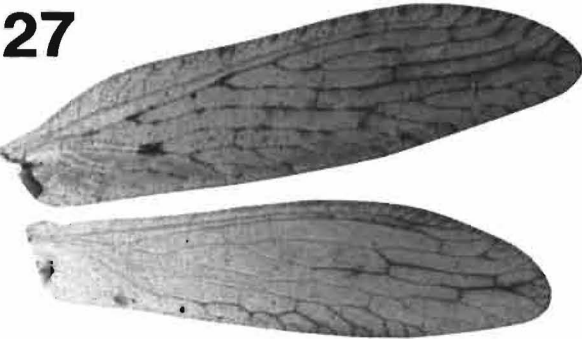
Micromus berzosai **n.sp.** has certain characteristics in wing and genital morphology that differentiate it from the species cited above. The appearance of its wings are intermediate in shape between *M. oblongus* and *M. acutipennis* (Figs 26–28), and similar to the shape observed by Monserrat (1990b) for *M. parallelus*. But forewings of *M. berzosai* **n.sp.** are peculiar with a fewer number of Radial sectors, and in the partial fusion of Mp₂ and CUa (Fig. 24), which are free in *M. parallelus* and *M. oblongus* (Fig. 25). The male genitalia of *M. berzosai* **n.sp.** are also different, apodeme of IX tergite is much more developed, and though the length of this process increases with adult age, I have not seen similar length in specimens of the other species. The catoprocessus is longer and ventrally denticulated (Fig. 21), and the form of the arcessus and the length of its spines is very different from what is known in the above mentioned species (Kimmins 1956; Tjeder 1961; Monserrat 1990b).

This species is dedicated to Dr Jacinto Berzosa in recognition of our friendship and his work in the study of thrips.

26



27



28



Figs 26–28. 26. Wings of *M. oblongus* Kimmins, 1935. 27. Wings of *M. berzosai* **n.sp.** 28. Wings of *M. acutipennis* Kimmins, 1956.

Symphorobius smitheri Nakahara, 1960.

Known from Zimbabwe, Zambia, and South Africa.

MATERIAL EXAMINED: SOUTH AFRICA: Transvaal, Kruger National Park, Shingwedzi, 6.ii.1988, 1 ♀ V. J. Monserrat, at light (VJM).

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